

**WHAT IS CLAIMED IS:**

1. An improved process for controlling micro-organisms in an aqueous process medium comprising adding a hop acid, characterized in, that the process comprises:
  - 5 (a) dissolving the hop acid in an aqueous alkaline medium to form an aqueous alkaline hop acid solution; and
  - (b) adding an effective amount of the aqueous hop acid solution to the aqueous process medium, wherein the pH of the aqueous hop acid solution is higher than the pH of the process medium and wherein the hop acid is in free acid form.
- 10 2. A process according to claim 1, wherein the aqueous alkaline hop acid solution is added to the process medium continuously.
3. A process according to claim 1, wherein the aqueous alkaline hop acid solution
  - 15 contains from about 2 to about 40 wt. % of hop acid.
4. A process according to claim 1, wherein the pH of the aqueous alkaline hop acid solution ranges from about 7.5 to about 13.0.
- 20 5. A process according to claim 1, wherein the hop acid is a natural hop acid or derivative thereof; an isomerized hop acid or derivative thereof; or mixtures thereof.
6. A process according to claim 5, wherein the natural hop acid or derivative thereof is alpha acid, beta acid, tetrahydroalpha acid, hexahydrobeta acid, or mixtures thereof.

7. A process according to claim 5, wherein the isomerized hop acid or derivative thereof is isoalpha acid, rhoisoalpha acid, tetrahydroisoalpha acid, hexahydroisoalpha acid, or mixtures thereof.

5 8. A process according to claim 1, wherein the alkaline medium comprises from about 1 to about 5 wt. % of potassium hydroxide, sodium hydroxide or mixtures thereof.

9. A process according claim 1, wherein the temperature of the process medium is lower than 100°C.

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10. A process according to claim 1, wherein the concentrations of the hop acid within the process medium is in the range of 0.1 - 50 ppm.

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11. ~~A process according to claim 1, wherein the process medium is selected from a fermentation medium in the course of the preparation of spirits or wine-containing beverages; a fermentation medium in the course of the dairy production; a process medium in a juice production process; a process medium in a yeast production process, a process medium in a detergent or cosmetic production process; a process medium in the processing of aqueous solutions of tinned foods.)~~

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12. A process according to claim 1, wherein the aqueous alkaline solution of hop acid is prepared according to the following process:

- a) heating an aqueous medium;
- b) adding a hop acid to the heated aqueous medium wherein the final concentration of the hop acid is within a predefined range of concentration;

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- to what?*
- c) adding an alkaline medium *to what?* to obtain a pre-defined pH;
  - d) mixing the alkaline medium with the hop acid aqueous medium;
  - e) keeping the mixture in a raised temperature range within a pre-defined time period;
  - 5 f) separating the solution of hop acid from the mixture; and
  - g) cooling the solution of hop acid to a temperature below about 20°C.

13. A process according to claim 12, wherein the solution of hop acid is cooled to a temperature below 10°C.

10 14. An improved process for controlling the bacterial growth in a distillery comprising a yeast growing tank and a fermentor tank containing a fermentable solution, the improvement comprising adding to the yeast and fermentor streams of the distillery an effective antibacterial amount of an isoalpa acid or derivative thereof.

15 15. A process according to claim 14 wherein, the isomerized hop acid or derivative thereof is isovalpha acid, rhoisovalpha acid, tetrahydroisovalpha acid, hexahydroisovalpha acid, or mixtures thereof.

20 16. A process according to claim 14 wherein, the fermentable solution is stored as a concentrate and the isomerized hop acid is dosed into the yeast or fermentor feed streams immediately after dilution as an aqueous solution.

25 17. A process according to claim 16 wherein, the pH of the aqueous solution comprising the isomerized hop acid is greater than the pH of the yeast or fermentor streams.

18. A process according to claim 14 wherein, the concentration of isomerized hop acid or derivative thereof in the yeast and fermentor streams ranges from about 1 to about 20 ppm.

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19. A process according to claim 14 wherein, the concentration of isomerized hop acid or derivative thereof in the yeast and fermentor streams ranges from about 2 to about 4 ppm.

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